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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/507,076	09/09/2004	Kenichiro Shinoi	L9289.04152	4426

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EXAMINER

WENDELL, ANDREW

ART UNIT

PAPER NUMBER

2643

DATE MAILED: 03/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/507,076	Applicant(s) SHINOI ET AL.	
	Examiner Andrew Wendell	Art Unit 2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 09 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 7-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benson, Jr. (US Pat# 6,546,045) in view of Kobayashi et al. (US Pat# 6,246,732).

Regarding claim 1, Benson, Jr. communication using adaptive modem teaches an estimator that estimates a propagation environment (propagation models) of a signal (Col. 2 lines 8-35 and Col. 4 line 60-Col. 5 line 15); and a selector that selects a receiving scheme for the signal from two or more receiving schemes (Col. 2 lines 8-35 and Col. 4 line 60-Col. 5 line 15). Benson, Jr. fails to teach a receiving scheme including linear equalization.

Kobayashi et al. demodulator including adaptive equalizer and demodulating in communications teaches a receiving scheme including at least linear equalization 33 (Fig. 9, Col. 11 lines 43-47), which is part of a propagation environment (Col. 7 lines 4-8).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to incorporate a receiving scheme including at least linear equalization as taught by Kobayashi et al. into Benson,

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Jr. adaptive receiver in order to improve communication quality and compensate interference (Col. 4 lines 22-65).

Regarding claim 7, the combination including Benson, Jr. teaches a determiner that determines a channel quality indicator for a transmission rate selection in accordance with a reception quality of a signal (scattering function estimate and channel characteristic data), wherein, when a receiving scheme is selected by the selector, the determiner determines the channel quality indicator based on a premise of performing a receiving scheme (Col. 2 lines 8-35 and Col. 4 line 60-Col. 5 line 15).

Regarding claim 8, the combination including Benson, Jr. teaches a reporter that reports the receiving scheme selected by the selector to a communicating station; and a transmitter that transmits a signal at a transmission rate based on the selected receiving scheme (from first modem to second modem) and a channel quality indicator, wherein, when the selected receiving scheme is possibly linear equalization, the transmitter transmits a signal at a transmission rate based on a premise that the communicating apparatus performs a receiving scheme (Col. 2 lines 8-35 and Col. 4 line 60-Col. 5 line 15).

Regarding claim 9, the combination including Benson, Jr. teaches wherein the estimator comprises a known signal obtainer that obtains a known signal contained in the signal and a reception quality measurer (scattering function estimate and channel characteristic data) that measures a reception quality of the known signal obtained; and wherein the selector selects a receiving scheme when the reception quality obtained is

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greater than a predetermined level (has to be some predetermined level in order to select a demodulation scheme) (Col. 2 lines 8-35 and Col. 4 line 60-Col. 5 line 15).

Regarding claim 10, the combination including Benson, Jr. teaches an obtainer that obtains control information relating to a modulation scheme of the signal, wherein the selector selects the receiving scheme for the signal in accordance with the propagation environment as estimated by the estimator and the modulation scheme (Col. 2 lines 8-35 and Col. 4 line 60-Col. 5 line 15).

Regarding claim 11, the combination including Benson, Jr. teaches an obtainer that obtains control information relating to the number of multiplex codes (spreading codes) with which the signal is multiplexed, wherein the selector selects the receiving scheme for the signal in accordance with the propagation environment as estimated by the estimator and the number of multiplex codes (Col. 2 lines 8-35 and Col. 4 line 60-Col. 5 line 15).

Regarding claim 12, Benson Jr. teaches an obtainer that obtains information relating to a receiving scheme selected from two or more receiving schemes in accordance with a propagation environment (propagation models); and a receiver that receives a signal received by the receiving scheme specified by the receiving scheme information obtained (Col. 2 lines 8-35 and Col. 4 line 60-Col. 5 line 15). Benson, Jr. fails to teach a receiving scheme including linear equalization.

Kobayashi et al. demodulator including adaptive equalizer and demodulating in communications teaches a receiving scheme including at least linear equalization 33

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(Fig. 9, Col. 11 lines 43-47), which is part of a propagation environment (Col. 7 lines 4-8).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to incorporate a receiving scheme including at least linear equalization as taught by Kobayashi et al. into Benson, Jr. adaptive receiver in order to improve communication quality and compensate interference (Col. 4 lines 22-65).

Regarding claim 13, the combination including Kobayashi et al. teaches a mobile station apparatus comprising the wireless communication (Col. 1 lines 6-20).

Regarding claim 14, the combination including Kobayashi et al. teaches a base station (same as a mobile station, both transmits and receives signals) apparatus comprising the wireless communication (Col. 1 lines 6-20).

Regarding claim 15, the combination including Kobayashi et al. teaches a mobile station apparatus comprising the receiving apparatus (Col. 1 lines 6-20 and Fig. 5).

Regarding claim 16, the combination including Kobayashi et al. teaches a base station (same as a mobile station, both transmits and receives signals) apparatus comprising the receiving apparatus (Col. 1 lines 6-20 and Fig. 5).

Regarding claim 17, Benson Jr. teaches estimating a propagation environment (propagation models) of a signal; and selecting a receiving scheme for the signal from two or more receiving schemes in accordance with the propagation environment estimated (Col. 2 lines 8-35 and Col. 4 line 60-Col. 5 line 15). Benson, Jr. fails to teach a receiving scheme including linear equalization.

Kobayashi et al. demodulator including adaptive equalizer and demodulating in communications teaches a receiving scheme including at least linear equalization 33 (Fig. 9, Col. 11 lines 43-47), which is part of a propagation environment (Col. 7 lines 4-8).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to incorporate a receiving scheme including at least linear equalization as taught by Kobayashi et al. into Benson, Jr. adaptive receiver in order to improve communication quality and compensate interference (Col. 4 lines 22-65).

3. Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benson, Jr. (US Pat# 6,546,045) in view of Kobayashi et al. (US Pat# 6,246,732) as applied to claim 1 above, and further in view of Kitade et al. (US Pat# 6,134,262).

Regarding claim 2, Benson, Jr. communication using adaptive modem in view of Kobayashi et al. demodulator including adaptive equalizer and demodulating in communications teaches the limitations in claim 1. The combination including Kobayashi et al. teaches a known signal obtainer that obtains a known signal contained in the signal 41 (Fig. 9); a reception quality measurer that measures a reception quality of the known signal obtained 110 (Fig. 9); a moving speed detector 112 (Fig. 9); and an interference power measurer 110 (Fig. 9) that measures a power of interference waves that arrive from other cells than a cell where the wireless communication apparatus belongs. Both Benson, Jr. and Kobayashi et al. fail to teach a moving speed detector that detects a moving speed of the wireless communication apparatus.

Kitade et al. spread spectrum receiving apparatus teaches a moving speed detector 104 (Fig. 1) that detects a moving speed of the wireless communication apparatus (Col. 5 lines 16-34).

Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art at the time the invention was made to incorporate a moving speed detector that detects a moving speed of the wireless communication apparatus as taught by Kitade et al. into a receiving scheme including at least linear equalization as taught by Benson, Jr. in view of Kobayashi et al. adaptive receiver in order to improve communication quality and compensate interference (Col. 4 lines 22-65).

Regarding claim 3, Benson, Jr. further teaches wherein the selector selects a demodulation scheme when a Doppler frequency estimator 112 (Fig. 9) output signal is below a predetermined level (has to be some predetermined level in order to select a demodulation scheme) and an impact of an interference wave is below a predetermined level (Col. 2 lines 8-35 and Col. 4 line 60-Col. 5 line 15). Benson, Jr. fails to teach a moving speed detector.

Kitade et al. teaches a moving speed detector 104 (Fig. 1) that detects a moving speed of the wireless communication apparatus (Col. 5 lines 16-34).

Regarding claim 4, Benson, Jr. further teaches wherein the selector selects a receiving scheme at a communicating station when the Doppler frequency estimator 112 (Fig. 9) output signal is below a predetermined level (has to be some predetermined level in order to select a demodulation scheme) (Col. 2 lines 8-35 and Col. 4 line 60-Col. 5 line 15). Benson, Jr. fails to teach a moving speed detector.

Kitade et al. teaches a moving speed detector 104 (Fig. 1) that detects a moving speed of the wireless communication apparatus (Col. 5 lines 16-34).

Regarding claim 5, Benson, Jr. further teaches wherein the estimator comprises a minimum period obtainer that obtains a minimum period for updating a coefficient for receiving scheme processing; and wherein the selector determines the predetermined level (has to be some predetermined level in order to select a demodulation scheme) based on the minimum period obtained (Col. 2 lines 8-35 and Col. 4 line 60-Col. 5 line 15).

Regarding claim 6, the combination including Benson, Jr. teaches wherein the estimator comprises a minimum period obtainer that obtains a minimum period for updating a coefficient for receiving scheme processing; and wherein the selector determines the predetermined level (has to be some predetermined level in order to select a demodulation scheme) based on the minimum period obtained (Col. 2 lines 8-35 and Col. 4 line 60-Col. 5 line 15).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Wendell whose telephone number is 571-272-0557. The examiner can normally be reached on 7:30-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 571-272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Patent Examiner

Date: 2/22/2006



DUC NGUYEN
PRIMARY EXAMINER

ASW